# Differensial tenglamalar fanidan TEST

| № | Test topshiriqlari | To'g'ri javob | Muqobil javob | Muqobil javob | Muqobil javob |
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| 1 | **Berilgan tenglamaning tipini aniqlang:** $y\sin x + y'\cos x = 1$ | Chiziqli | Bernulli | O'zgaruvchilari ajraladigan | Rikkati |
| 2 | **Ushbu** $y''' + 3y' = x$, $y(0) = 1,\ y'(0) = 3\ y''(0) = 2$ **masala, qanday masala deyiladi** | Koshi masalasi | Chegaraviy masala | Variatsion masala | To'gri javob yo'q |
| 3 | **Quyidagi tenglama qaysi tipga tegishli:** $(x\cos y - y^2)\,dy + (\sin y + x)\,dx = 0$ | To'la differensial | Bernulli | Hosilaga nisbatan echilmagan | $x$ ga nisbatan chiziqli |
| 4 | $y' - xy = 0$ **tenglamaning umumiy yechimini toping** | $y = c \cdot e^{x^2/2}$ | $y = c + e^{x^2/2}$ | $y = c \cdot e^{x^2}$ | $y = c \cdot x^2$ |
| 5 | $y'' - 16y = 0$ **tenglamaning umumiy yechimini toping** | $y = c_1 e^{4x} + c_2 e^{-4x}$ | $y = c_1 \cos 4x + c_2 \sin 4x$ | $y = ce^{-16x}$ | $y = c_1 e^{-4x}\cos 4x + c_2 e^{-4x}\sin 4x$ |
| 6 | $2y - xy' = 0$ **tenglamaning umumiy yechimini** | $y = cx^2$ | $y^3 = cx + x^2$ | $xy + y^3 = c$ | $y = 0$ |

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| | **toping** | | | | |
| 7 | **Ushbu** $y=2xy'+\sin y'$ **tenglama ... tenglamasi deb ataladi** | Lagranj | Bernulli | Klero | Rikkati |
| 8 | **Qanday almashtirish bajarilsa ushbu** $y'-xy=4\sqrt{y}$ **tenglama chiziqli tenglamaga kela-di?** | $z=\sqrt{y}$ | $y=zx$ | $z=\frac{1}{\sqrt{y}}$ | $y=zx^2$ |
| 9 | **Eyler tenglamasi qaysi javobda ko'rsatilgan?** | $x^2y''-2xy'+3y=0$ | $xy''-2y'-3xy=0$ | $xy'-x^2y+1=0$ | $y''+2y'+y=0$ |
| 10 | $y''+16y=0$ **tenglamaning umumiy yechimini toping** | $y=C_1\cos 4x+C_2\sin 4x$ | $y=Ce^{-16x}$ | $y=C_1e^{4x}+C_2e^{-4x}$ | $y=C_1e^{-4x}\cos 4x+C_2e^{-4x}\sin 4x$ |
| 11 | **Berilgan differensial tenglamaning xususiy yechimini aniqlang:** $y''+y'=3x^2-6$ | $y=x^3-3x^2$ | $y_1=5x^4+4x^2$ | $y_1=x^4-x^3+7x^2$ | $y_1=ax^2+bx+c$ |
| 12 | **Hususiy yechimi** $y_1=x^2e^x$ **bo'lgan chiziqli o'zgarmas koeffisientli** | $y'''-3y''+3y'-y=0$ | $y'''-y'=0$ | $y''-y=0$ | $y'''+3y''=0$ |

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| | **differensial tenglamani ko'rsating** | | | | |
| 13 | **Agar** $y_1(x),\ y_2(x)$ **chiziqli bog'liq bo'lsa** | $W(y_1(x), y_2(x)) \equiv 0$ | $W(y_1(x), y_2(x)) \neq 0$ | $W(y_1(x), y_2(x)) > 0$ | $W(y_1(x), y_2(x)) < 0$ |
| **14** | **Eyler tenglamasiga keltiriladigan tenglama qaysi javobda ko'rsatilgan?** | $xy'' - 2y' + \frac{3}{x}y = 0$ | $xy'' - 2y' - 3xy = 0$ | $xy' - x^2y + 1 = 0$ | $y'' + 2y' + y = 0$ |
| 15 | **Berilgan tenglamaning tipini aniqlang:** $(x + x^2)y' + x^2y = 0$ | o'zgaruvchilari ajraladigan | to'la differensial | $y$ ga nisbatan chiziqli | Bernulli |
| 16 | **Tenglamaning tipini aniqlang** $xy' = 2y + xe^{\frac{2y}{x}}$ | Bir jinsli differensial tenglama | Bernulli | o'zgaruvchilari ajraladigan | to'la differensial |
| 17 | $xy' = x^2 - y$ **tenglamani yechimini aniqlang** | $y = \frac{x^3 + c}{3x}$ | $y = cx + x^2$ | $y = cx^3 + x^2$ | $y = cx^2 + 2x^3$ |
| 18 | $(2x + 3x^2)dx + 2ydy = 0$ **tenglamaning umumiy yechimini toping** | $x^2 + x^3 + y^2 = c$ | $x^2y + y^3 = c$ | $x^2y + x^3 = c$ | $\frac{x}{y} + x^3 = c$ |
| 19 | **Tenglamaning tipini aniqlang** $y = x\sin y' + 2y'^2$ | Lagranj | Bernulli | Klero | Eyler |

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| 20 | **Ushbu $y=ce^{2x}$ chiziqlar sinfining differensial tenglamasini toping** | $y'=2y$ | $y'=y^{\frac{2}{x}}$ | $y'x=3y$ | $y'x^2=y^2$ |
| **21** | $y'=\frac{y}{x}$ **tenglamani yechimini aniqlang** | $y=cx$ | $y=c+x$ | $y=c_1x+c_2$ | $y=ce^x$ |
| 22 | $y''+4y=0$ **tenglamaning umumiy yechimini toping** | $y=c_1\cos 2x+c_2\sin 2x$ | $y=c_1e^{2x}+c_2e^{-2x}$ | $y=ce^{-4x}$ | $y=c_1\cos 2x+c_2x\cos 2x$ |
| 23 | **Hususiy yechimni aniqmas koeffisientlar usuli bilan toping** $y''+5y'+4y=4x^2e^{2x}$ | $y=(ax^2+bx+c)e^{2x}$ | $y=x(ax^2+bx+c)e^{2x}$ | $y=x(ax+b)e^{2x}$ | $y=ax^2e^{2x}$ |
| 24 | **Hususiy yechimi $y_1=xe^x$ bo'lgan chiziqli o'zgarmas koeffisientli differensial tenglamani ko'rsating** | $y''-2y'+y=0$ | $y''-2y'-3y=0$ | $y'-y=0$ | $y''+2y''+y=0$ |
| 25 | $y'+2y=e^x$ **tenglamaning yechimini toping:** | $y=ce^{-2x}+\frac{1}{3}e^x$ | $y=ce^{-2x}-\frac{1}{3}e^x$ | $y=ce^{-x}+2$ | $y=ce^{-2x}+\frac{x}{3}e^x$ |
| 26 | **Ushbu** $3x^2ydx+(x^3-3y^2)dy=0$ | $x^3y-y^3=c$ | $x^2y^2-y=c$ | $xy-y^2=c$ | $xy^2+y=c$ |

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| | **tenglamaning umumiy yechimini toping:** | | | | |
| 27 | $y'' + 9y' = 0$ **tenglamaning umumiy yechimini toping:** | $y = C_1 + C_2 e^{-9x}$ | $y = C_1 e^{3x} + C_2 e^{-3x}$ | $y = C_1 \cos 3x + C_2 \sin 3x$ | $y = C_1 + C_2 e^{9x}$ |
| 28 | **O'zgaruvchilari ajralgan tenglamani belgilang** | $m(x)dx + n(y)dy = 0$ | $dy = f(ax + by)dx$ | $m(x,y)dx + n(y)xdy = 0$ | $a(x)y' + b(x)y = c(x)$ |
| 29 | $dy = f(ax + by + c)dx$ **ten g-lama qanday almashtirish yordamida o'zgaruvchilari ajralgan tenglamaga keladi?** | $z = ax + by + c$ | $y = zx^n$ | $y = zx$ | $y = e^{ax}$ |
| 30 | **Birinchi tartibli chiziqli tenglamani aniqlang:** | $a(x)y' + b(x)y = c(x)$ | $dy = f(ax + by)dx$ | $m(x)ydx + n(y)xdy = 0$ | $m(x)dx + n(y)dy = 0$ |
| 31 | **Bernulli tenglamasini bel-gilang:** | $x' + b(y)x = c(y)x^n$ | $dy = f(ax + by)dx$ | $m(x)ydx + n(y)xdy = 0$ | $m(x)dx + n(y)dy = 0$ |
| 32 | **Quyidagi tenglamalarning qaysi biri Rikkati tenglamasi deyiladi:** | $a(x)y' + b(x)y + c(x)y^2 = d(x)$ | $dy = f(ax + by)dx$ | $m(x)ydx + n(y)xdy = 0$ | $m(x)dx + n(y)dy = 0$ |
| 33 | $M(x,y)dx + N(x,y)dy = 0$ **tenglama** | $M(tx,ty) = t^n M(x,y)$ $N(tx,ty) = t^n N(x,y)$ | $M(tx,ty) = t^n N(x,y)$ | $M(tx,ty) = t^n M(x,y)$, $N(tx,ty) = t^k N(x,y)$, $k =$ | $M(tx,ty) = t^n M(x,y)$ $N(x,y)$ ixtiyoriy |

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| | **o'zgaruvchilarga nisbatan bir jinsli deyiladi, agar··... tenglik o'rinli bo'lsa** | | | | |
| 34 | $M(x,y)dx+N(x,y)dy=0$ **tenglama to'la differensial tenglama bo'ladi, agar ... tenglik o'rinli bo'lsa** | $\frac{\partial M}{\partial y}\equiv\frac{\partial N}{\partial x}$ | $\frac{\partial M}{\partial y}\neq\frac{\partial N}{\partial x}$ | $\frac{\partial M}{\partial y}>\frac{\partial N}{\partial x}$ | $\frac{\partial M}{\partial y}<\frac{\partial N}{\partial x}$ |
| 35 | **Lagranj tenglamasini aniq-lang** | $y=x\varphi(y')+\psi(y')$ | $m(x)dx+n(y)dy=0$ | $a(x)y'+b(x)y=c(x)y^{\alpha}$ | $a(x)y'+b(x)y+c(x)y^{\alpha}=d(x)$ |
| 36 | **Quyidagi tenglamalarning qaysi biri Klero tenglamasi deyiladi** | $x=yx'+\sin x'$ | $m(x)dx+n(y)dy=0$ | $a(x)y'+b(x)y=c(x)y^{\alpha}$ | $a(x)y'+b(x)y+c(x)$ |
| 37 | **Quyidagi funksiyalar sistemasining qaysi biri chiziqli bog'liq?** | $6x+9,\ 8x+12$ | $1,\ x,\ x^2$ | $\sin x,\ \cos x$ | $e^x,\ e^{2x},\ e^{3x}$ |
| 38 | **Xususiy yechimlari** $e^x,\ shx,\ chx$ **bo'lgan eng kichik tartibli chiziqli differesial tenglama tuzing** | $y''-y=0$ | $y'''-y'=0$ | $y''+y=0$ | $y'''+3y''=0$ |
| 39 | $y'=f(x,y)$ **tenglama uchun Koshi shartini aniqlang** | $y(x_0)=y_0$ | $x_0=1$ | $y'(x_0)=y_0$ | $y_0=0$ |
| 40 | **Hosilaga nisbatan** | $y=xy'+\psi(y')$ | $m(x)dx+n(y)dy=0$ | $a(x)y'+b(x)y=c(x)y^{\alpha}$ | $a(x)y'+b(x)y+c(x)y^{\alpha}=$ |

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| | **echilmagan tenglamani ko'rsating** | | | | |
| 41 | $F(x, y, y', y'', ..., y^{(n)}) = 0$ **tenglama** $y$ **va uning hosilalariga nisbatan birjinsli bo'lsa, bu tenglama tartibi ... almashtirish orqali bittaga kamaytiriladi** | $y' = zy$ | $y' = z$ | $y' = zx$ | $y' = ze^x$ |
| 42 | **Agar Rikkati tenglamasida** $y_1$ **xususiy yechimi ma'lum bo'lsa, bu tenglama qanday almashtirish yordamida yechiladi?** | $y = z + y_1$ | $y_1 = zy$ | $y_1 = zx$ | $y = e^{zy_1}$ |
| 43 | **Birinchi tartibli chiziqli differensial tenglama qaysi javobda to'gri ko'rsatilgan?** | $a(y)x' + b(y)x = c(y)$ | $dy = f(ax + by)dx$ | $m(xy)dx + n(y)xdy = 0$ | $m(x)dx + n(y)dy = 0$ |
| 44 | **Quyidagi tenglamalarning qaysi biri Bernulli tenglamasi deyiladi:** | $a(y)x' + b(y)x = c(y)x^n$ | $dy = f(ax + by)dx$ | $m(x)ydx + n(y)xdy = 0$ | $m(x)dx + n(y)dy = 0$ |

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| 45 | **Quyidagi funksiyalar siste-masining qaysi biri chiziqli bog'liq?** | $x, 3x, 6x$ | $1, x, x^2$ | $\sin 2x, \cos x$ | $e^x, e^{2x}, e^{3x}$ |
| 46 | **Chiziqli erkli funksiyalar sistemasini aniqlang** | $x, x^2, x^3$ | $e^x, 2e^x, 3e^x$ | $x-1, 2x-2$ | Bunday funksiya yo'q |
| 47 | **Berilgan tenglamaning nomini aniqlang:** $y+y'\cos x=x$ | Chiziqli | Bernulli | O'zgaruvchilari ajraladigan | Rikkati |
| 48 | **Ushbu masala qanday masala deyiladi** $y''+3y'=x,\quad y(0)=1,$ $y'(0)=3,\ y''(0)=2$ | Koshi masalasi | Chegaraviy masala | Variatsion masala | To'gri javob yo'q |
| 49 | **Berilgan tenglamaning tipini aniqlang:** $y\sin x+y'\cos x=y^3$ | Bernulli | Chiziqli | Bir jinsli differen-sial tenglama | Rikkati |
| 50 | **Integrallovchi kopaytuvchi qanday tenglamalar uchun kiritiladi** | Chiziqli va to'la differensial | Bernulli | Bir jinsli differensial tenglama | Rikkati |
| 51 | **Berilgan tenglamaning tipini aniqlang:** $(x\cos y+y)dy+(\sin y+x)dx=0$ | to'la differensial | Bernulli | Bir jinsli differen-sial tenglama | $y$ ga nisbatan chiziqli |

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| 52 | $y' = 2y - 1$ **tenglamaning umumiy yechimini toping** | $y = ce^{2x} + 0,5$ | $y = 3x^3 + ce^x$ | $x = cy^3 + y^2$ | $y = cx + x^2$ |
| 53 | $y = xy' - 2y'^3$ **tenglama-ning ... maxsus yechimini toping** | $27y^2 = 2x^3$ | $y^2 = 9x^3$ | $6y^2 = x^3$ | $3y^3 = x^2$ |
| 54 | $ydx + (x + 3y^2)dy = 0$ **tengla-maning umumiy yechimini toping** | $xy + y^3 = c$ | $y^3 = cx + x^2$ | $y = cx^2 - 1$ | $y = 0$ |
| 55 | **Ushbu** $y = -xy' + \cos y'$ **tenglama ... tenglamasi deb ataladi** | Lagranj | Bernulli | Klero | Rikkati |
| 56 | **Ushbu** $y - xy' = chy'$ **teng-lama ... tenglamasi deb ataladi** | Klero | Rikkati | Bernulli | Lagranj |
| 57 | **Ushbu** $y' = xy'' - y,\ y(0) = 0,$ $y(1) = 2$ **masala qanday masala deyiladi** | Chegaraviy masala | Koshi masalasi | Variatsion masala | To'gri javob yo'q |
| 58 | $y'' + 36y = 0$ **tenglamaning umumiy yechimini toping** | $y = c_1 \cos 6x + c_2 \sin 6x$ | $y = ce^{-6x}$ | $y = c_1 e^{4x} + c_2 e^{-4x}$ | $y = e^{-6x}(c_1 \cos 4x + c_2 \sin 4x)$ |

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| 59 | **Xususiy yechimi** $y_1 = x^2 e^x$ **bo'lgan chiziqli o'zgarmas koeffisientli differensial tenglamani ko'rsating** | $y''' + 3y'' + 3y' + y = 0$ | $y''' - y' = 0$ | $y'' - y = 0$ | $y''' + 3y'' = 0$ |
| 60 | **Qaysi tenglama Eyler tenglamasi bo'ladi** | $x^2 y'' - 2xy' + y = 0$ | $y'' + 4xy = 0$ | $xy'' + 16y = 0$ | $y''' - y' = 0$ |
| 61 | **Ushbu** $F(x, y', y'', \ldots, y^{(n)}) = 0$ **tenglamaning tartibi ... al-mashtirish yordamida pasaytiriladi** | $y' = z(x),\ y'' = z'(x), \ldots,$ $y^{(n)} = z^{(n-1)}(x)$ | $y' = yz(x)$ | $y' = z(y),\ y'' = z(y) \cdot z'($ | To'g'ri javob yo'q |
| 62 | **Ushbu masala qanday masala deyiladi:** $2y'(y'' + 2) = xy''^2,\ y(1) = 1,\ y'(1) = 2$ | Koshi masalasi | Chegaraviy masala | Variatsion masala | To'gri javob yo'q |
| 63 | **Berilgan tenglamaning tipini aniqlang:** $(x + 3x^2)y' + xy = 0$ | o'zgaruvchilari ajraladigan | to'la differensial | $y$ ga nisbatan chiziqli | Bernulli |
| 64 | **Tenglamaning tipini aniqlang:** $x^2 y' = y^2 + x^2$ | Bir jinsli differen sial tenglama | Bernulli | o'zgaruvchilari ajraladigan | to'la differensial |
| 65 | **Ushbu** | $y' = z(y),\ y'' = z(y) \cdot z'(y), \ldots$ | $y' = z(x),\ y'' = z'(x)$ | $y' = yz(x)$ | To'g'ri javob |

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| | $F(y, y', y'', ..., y^{(n)}) = 0$ **tenglama tartibi … almash-tirish orqali pasaytiriladi** | | | | yo’q |
| 66 | $(2x+1)^2 y'' - 2(2x+1) y' + y = 1$ **tenglama … tenglamasi deyiladi** | Eyler | Klero | Bernulli | Rikkati |
| 67 | **Tenglamaning nomini aniq-lang:** $x = y\sin x' + 2x'^2$ | Lagranj | Klero | Bernulli | Eyler |
| 68 | **Ushbu** $y = (C_1 + C_2 x) e^x$ **chi-ziqlar sinfi yechim bo’ladigan differensial tenglamani tuzing** | $y'' - 2y' + y = 0$ | $y' = y^{\frac{2}{x}}$ | $y'x = 3y$ | $y'x^2 = y^2$ |
| 69 | **Agar** $y_1(x),\ y_2(x)$ **funksi-yalar biror 2-tartibli chiziqli birjinsli differensial tengla-maning yechimlari bo’lib, ular chiziqli erkli bo’lsa,** | $W(y_1(x), y_2(x)) \neq 0$ | $W(y_1(x), y_2(x)) \equiv 0$ | $W(y_1(x), y_2(x)) > 0$ | $W(y_1(x), y_2(x)) < 0$ |
| 70 | **Ushbu** $x^2 y'' - 5xy' + 4y = e^{2x}$ **tenglama … tenglamasi deyiladi** | Eyler | Lagranj | Klero | Bernulli |
| 71 | $y''' + 4y'' = 0$ **tenglamaning** | $y = C_1 e^{4x} + C_2 + C_3 x$ | $y = C_1 e^{2x} + C_2 e^{2x} + C_3 x$ | $y = C_1 e^{4x} + C_2$ | $y = C_1 \cos 2x + C_2 x + C_3$ |

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| | **umumiy yechimini ko'r-sating:** | | | | |
| 72 | $y'' - 5y' + 4y = xe^x$ **tenglama hususiy yechimi qanday ko'rinishga ega** | $y = x(ax + b)e^x$ | $y = x(ax^2 + bx + c)e^x$ | $y = (ax^2 + bx + c)e^x$ | $y = ax^2e^x$ |
| 73 | **Hususiy yechimi** $y_1 = xe^x$ **bo'lgan chiziqli o'zgarmas koeffisientli differensial tenglamani ko'rsating** | $y'' + 2y' + y = 0$ | $y'' - 2y' - 3y = 0$ | $y' - y = 0$ | $y'' + 2y' - y = 0$ |
| 74 | **Ushbu funksiyalar** $1, \sin x^2, \cos x$ **chiziqli bog'liq bo'ladimi?** | Yo'q | aniqlash qiyin | ha | $x$ ga bog'liq |
| 75 | $y' - 2y = -e^x$ **tenglama-ning yechimni ko'rsating:** | $y = ce^{2x} + \frac{1}{3}e^x$ | $y = ce^{2x} - \frac{1}{3}e^x$ | $y = ce^x + 2$ | $y = ce^{2x} + \frac{x}{3}e^x$ |
| 76 | **Ushbu** $(x + y^2)dx - 2xydy = 0$ **tenglamaning integrallov-chi ko'paytuvchisini ko'rsating** | $\mu(x) = \frac{1}{x^2}$ | $\mu(x) = -\frac{1}{x^2}$ | $\mu(y) = \frac{1}{y^2}$ | $\mu(x) = x^2$ |
| 77 | $y'' - 2y' = -e^x$ **tenglama -ning umumiy yechimini toping** | $y = c_1 + c_2e^{2x} - e^x$ | $y = c_1e^{3x} + c_2e^{3x} + e$ | $y = c_1\cos x + c_2\sin x +$ | $y = c_1 + c_2e^x - e^x$ |

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| 78 | **O'zgaruvchilari ajralgan tenglamani belgilang** | $m(x)dx+n(y)dy=0$ | $dy=f(ax+by)dx$ | $m(xy)dx+n(y)xdy=0$ | $a(x)y'+b(x)y=c(x)$ |
| 79 | $dy=\sin(2x+3y)dx$ **tenglama qanday almashtirish yordamida o'zgaruvchilari ajralgan tenglamaga keladi?** | $z=2x+3y$ | $y=zx^n$ | $y=zx$ | $y=3e^{2x}$ |
| 80 | **Birinchi tartibli chiziqli tenglamani aniqlang:** | $y'+\sin x\cdot y=\cos x$ | $dy=\sin(ax+by)dx$ | $\sin x\cdot ydx+yxdy=0$ | $mxdx+nydy=0$ |
| 81 | **Bernulli tenglamasini belgilang** | $a(x)y'+b(x)y=c(x)y^n$ | $dy=f(ax+by)dx$ | $m(x)ydx+n(y)xdy=0$ | $m(x)dx+n(y)dy=0$ |
| 82 | **Rikkati tenglamasini yechish davomida avval qanday tenglamaga keltiriladi?** | Bernulli | Lagranj | Klero | Eyler |
| 83 | **Ushbu** $M(x,y)dx+N(x,y)dy=0$ **tenglamada integrallovchi ko'paytuvchi** $x$ **ning funksiyasi bo'ladi agar** | $\frac{M_y-N_x}{N}$ ifoda $x$ ning funksiyasi | $\frac{M_y-N_x}{M}$ ifoda $x$ ning funksiyasi | $\frac{M_y-N_x}{N}$ ifoda $xy$ ning funksiyasi | $\frac{M_y-N_x}{M}$ ifoda $xy$ ning funksiyasi |
| 84 | **Ushbu** | Tenglama chap | Tenglama chap | Tenglama chap | Tenglama chap |

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| | $M(x,y)dx+N(x,y)dy=0$ **tenglama to'la differensial tenglama deyiladi, agar...** | tomoni biror dif-ferensiallanuvchi funksiyaning to'la differensialini bersa | to-monidagi M va N funksiyalar differentsiallanuvchi funksiyalar bo'lsa | tomonidagi M va N funksiyalar differ-rensiallanuvchi funksiyalar bo'lib, $M_y > N_x$ bo'lsa | tomonidagi M va N funksiyalar differ-rensiallanuvchi funksiyalar bo'lib, $M_y < N_x$ bo'lsa |
| 85 | **Lagranj tenglamasini aniqlang:** | $x+yx'=\psi(x')$ | $m(x)dx+n(y)dy=0$ | $a(x)y'+b(x)y=c(x)y^{\alpha}$ | $a(x)y'+b(x)y+c(x)y^{\alpha}=d($ |
| 86 | **Quyidagi tenglamalarning qaysi biri Klero tenglamasi deyiladi?** | $y=xy'+\psi(y')$ | $m(x)dx+n(y)dy=0$ | $a(x)y'+b(x)y=c(x)y^{\alpha}$ | $a(x)y'+b(x)y+c(x)y^{\alpha}=d($ |
| 87 | $y'=2xy$ **tenglamaning umumiy yechimini toping** | $y=ce^{x^2}$ | $y=ce^{2x}$ | $x=ce^{y^2}$ | $y=cx+x^2$ |
| 88 | $y'=\sqrt[3]{y}$ **tenglamaning maxsus yechimini toping** | $y=0$ | $y=const$ | $y=e^{3x}$ | maxsus yechimi yo'q |
| 89 | $3y^2dx+(6yx+2y)dy=0$ **tenglamaning umumiy yechimini toping** | $3y^2x+y^2=c$ | $y^3=cx+x^2$ | $y=cx^2-1$ | $y=0$ |

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| 90 | **Ushbu** $M(x,y)dx+N(x,y)dy=0$ **tenglamada integrallovchi ko'paytuvchi** $y$ **ning funksiyasi bo'ladi agar** | $\frac{M_y-N_x}{M}$ ifoda $y$ ning funksiyasi | $\frac{M_y-N_x}{M}$ ifoda $x$ ning funksiyasi | $\frac{M_y-N_x}{N}$ ifoda $xy$ ning funksiyasi | $\frac{M_y-N_x}{M}$ ifoda $xy$ ning funksiyasi |
| 91 | **Chiziqli differensial operatorning hossalari qaysi javobda to'g'ri keltirilgan?** | $Д[cy]=cД[y]$ va $Д[ay_1+by_2]=aД[y_1]+bД[y_2]$ | $Д[y_1:y_2]=Д[y_1]:Д[y_2]$ | $Д[y_1\cdot y_2]=Д[y_1]+Д[y_2]$ | $Д[y_1\cdot y_2]=Д[y_1]\cdot Д[y_2]$ |
| 92 | $y'=f\left(\frac{ax+by}{cx+dy}\right)$ **tenglama qanday almashtirish yordamida o'zgaruvchilari ajralgan tenglamaga keladi?** | $z=ax+by$ agar $\frac{a}{b}=\frac{c}{d}$ bo'lsa | $y=zx^n$ | $y=zx$ | $y=e^{ax}$ |
| 93 | **Birinchi tartibli chiziqli tenglamaga keltiriladigan tenglama qaysi javobda to'g'ri ko'rsatilgan?** | $y'f(y)+b(x)f(y)=c(x)$ | $dy=f(ax+by)dx$ | $m(x)ydx+n(y)xdy=0$ | $m(x)dx+n(y)dy=0$ |
| 94 | **Quyidagi tenglamalardan qaysi biri Bernulli tenglamasi bo'ladi?** | $a(x)y'+b(x)y=c(x)y^r$ | $dy=f(ax+by)dx$ | $m(x)ydx+n(y)xdy=0$ | $m(x)dx+n(y)dy=0$ |

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| 95 | **Hususiy yechimni aniqmas koeffisientlar usuli bilan toping** $y'' - 3y' + 2y = 4x^2 e^{-x}$ | $y = (ax^2 + bx + c)e^{-x}$ | $y = x(ax^2 + bx + c)e$ | $y = x(ax + b)e^{2x}$ | $y = ax^2 e^{2x}$ |
| 96 | $y' - xy = xe^{x^2}$ **tenglamaning yechimini toping:** | $y = ce^{x} + e^{x^2}$ | $y = ce^{-2x} - e^{2x}$ | $y = ce^{-x} + e^{x^2}$ | $y = ce^{-2x} + xe^{x}$ |
| 97 | **Ushbu** $x^2 y'' - 4xy' + 4y = 0$ **tenglama ... tenglamasi deyiladi va xususiy yechimlari ... bo'ladi** | Eyler, $x$ va $x^4$ | Eyler, $x$ va $x^2$ | Eyler, $x^4$ | Bernulli, $x$ va $x^4$ |
| 98 | **Differensial tenglama izi (trayektoriyasi) deb,** | Tenglama yechimi grafigi-ning koordinata o'qlardagi proyek-siyasiga aytiladi | Tenglama yechimi grafigining ordina-ta o'qidagi proyek-siyasiga aytiladi | Integral egri chiziq | Tenglama yechimi grafigining absissa o'qidagi proyeksiyasiga aytiladi |
| 99 | **Izoklinalar yordamida** | Integral eqri chi-ziqlar oilasi taqri-biy quriladi | Differensial tenglama tuziladi | Differensial tenglama turi aniqlanadi | Yechimning aniq ko'rinishi yoziladi |
| 100 | **Nol izoklina bu** | Integral eqri chi-ziqlar oilasining ekstremum | Integral eqri chi-ziqlar oilasining egilish | Differensial tenglama izi | Integral eqrichiziqlar oilasi |

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| | | nuqta-lari geometrik o’rni | nuqtalari geometrik o’rni | | |
| 101 | **Hususiy yechimni aniqmas koeffisientlar usuli bilan toping** $y'' - y' = xe^{-x} + 1$ | $y = (ax + b)e^{x} + cx$ | $y = x(ax + c)e^{x}$ | $y = x(ax + b)e^{-x}$ | $y = ax^{2}e^{-x}$ |
| 102 | $y^{IV} - 2y'' + y = 0$ **tenglama-ning yechimini toping:** | $y = (c_1 + c_2x)e^{x} +$ $+(c_3 + c_4x)e^{-x}$ | $y = (c_1 + c_2x)e^{2x} +$ $+(c_3 + c_4x)e^{-2x}$ | $y = ce^{-x} + e^{x^2}$ | $y = ce^{-2x} + xe^{x}$ |
| 103 | $2yy'' + y'^{2} = 0$ **tenglama tartibi … almashtirish orqali bittaga kamaytiriladi** | $y' = zy$ | $y' = z$ | $y' = zx$ | $y' = ze^{x}$ |
| 104 | **Ushbu** $(2xy^{2} - 3y^{3})dx - (7 - 3xy^{2})dy = 0$ **tenglamaning integral-lovchi ko’paytuvchisini ko'rsating** | $\mu = \varphi(y)$ | $\mu = \varphi(x)$ | $\mu = \varphi(xy)$ | $\mu = \varphi(x + y)$ |
| 105 | $y' = f\left(\frac{ax + by + c}{a_1x + b_1y + c_1}\right)$ **tenglama qanday almashtirish yordamida yechiladi?** | $z = \frac{y}{x}$, agar $\frac{a}{a_1} \neq \frac{b}{b_1}$ bo’lsa | $y = zx^{n}$ | $y = zx$ | $z = \frac{y}{x}$, agar $\frac{a}{a_1} = \frac{b}{b_1}$ bo’lsa |
| 106 | $y' = f\left(\frac{ax + by + c}{a_1x + b_1y + c_1}\right)$ | bir jinsli | chiziqli | to’la | Bernulli |

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| | **tenglamada $\frac{a}{a_1} \neq \frac{b}{b_1}$ bo'lsa, bu tenglama ... differensial tenglamaga keltiriladi** | | | | |
| 107 | $y^{IV} + 2y'' + y = 0$ **tenglama-ning yechimini toping:** | $y = (c_1 + c_2 x)\cos x +$ $+ (c_3 + c_4 x)\sin x$ | $y = (c_1 + c_2 x)e^x +$ $+ (c_3 + c_4 x)e^{-x}$ | $y = ce^{-x} + e^{x^2}$ | $y = ce^{-2x} + xe^x$ |
| 108 | $2y^2 y'' + y'^3 + xyy'y'' = 0$**tenglama tartibi ... almashtirish orqali bittaga kamaytiriladi** | $y' = zy$ | $y' = z$ | $y' = zx$ | $y' = ze^x$ |
| 109 | **Hususiy yechimni aniqmas koeffisientlar usuli bilan toping** $y'' - 4y' + 3y = 4x^2 e^x$ | $y = x(ax^2 + bx + c)e^x$ | $y = x(ax^2 + bx + c)e^{2x}$ | $y = x(ax + b)e^{2x}$ | $y = ax^2 e^{2x}$ |
| 110 | $y' = x\sqrt[3]{y^2}$ **tenglamaning maxsus yechimini toping** | $y = 0$ | $y = const$ | $y = e^{3x}$ | maxsus yechimi yo'q |
| 111 | $yy'' + y'^2 + xy'y'' = 0$**tenglama tartibi ... almashtirish orqali bittaga kamaytiriladi** | $y' = zy$ | $y' = zx$ | $y' = z$ | $y' = ze^x$ |

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| 112 | $y' = f\left(\frac{2x+y+1}{4x+2y}\right)$ **tengla-ma qanday almashtirish yordamida o'zgaruvchilari ajralgan tenglamaga keladi?** | $z=2x+y$ | $z=yx^2$ | $z=yx$ | $z=ye^{2x}$ |
| 113 | $y^2+y''^2+xy'^2=0$**tengla ma tartibi ... almashtirish orqali bittaga kamaytiriladi** | $y'=zy$ | $y'=zx$ | $y'=z$ | $y'=ze^x$ |
| 114 | **Ushbu** $2xy^2dx-3x^2ydy=0$ **tenglamaning integral-lovchi ko’paytuvchisini ko'rsating** | $\mu=\varphi(y)$ | $\mu=\varphi(x)$ | $\mu=\varphi(xy)$ | $\mu=\varphi(x+y)$ |
| 115 | $y''^2+yy'+y'y''=0$**tengl ama tartibi ... almashtirish orqali bittaga kamaytiriladi** | $y'=zy$ | $y'=ze^x$ | $y'=zx$ | $y'=z$ |
| 116 | **Ushbu** $\left(1+\frac{y^2}{x}\right)dx-2ydy=0$ **tenglamaning integrallov-chi ko’paytuvchisini** | $\mu(x)=\frac{1}{x}$ | $\mu(x)=-\frac{1}{x^2}$ | $\mu(y)=\frac{1}{y^2}$ | $\mu(x)=x^2$ |

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| | **ko'rsating** | | | | |
| 117 | **Ushbu** $y'x - y'' = y,$ $y(0) = 0, \quad y(1) = 2$ **masala qanday masala deyiladi** | Chegaraviy masala | Koshi masalasi | Variatsion masala | To'gri javob yo'q |
| 118 | **Grinn funksiyasi qanday masalani yechishda quriladi** | Chegaraviy masala | Koshi masalasi | Variatsion masala | To'gri javob yo'q |
| 119 | **Hususiy yechimni aniqmas koeffisientlar usuli bilan toping** $y'' - 4y' + 3y = e^x$ | $y = Ae^x, A = const$ | $y = x(ax^2 + bx + c)e^x$ | $y = x(ax^2 + bx + c)e^x$ | $y = ax^2e^{2x}$ |
| 120 | $y'' - 2y' - 3y = e^{3x} + 2e^x$ **tenglamaning xususiy yechimni aniqmas koeffisientlar usuli bilan toping** | $y = Axe^x + Bxe^{3x}$ | $y = xae^x + x(bx + c)e^{3x}$ | $y = x(ax + b)e^x$ | $y = ax^2e^{3x}$ |
| 121 | **Berilgan tenglamaning tipini aniqlang:** $xy + y' \ln x = x$ | Chiziqli | Bernulli | O'zgaruvchilari ajraladigan | Rikkati |
| 122 | **Ushbu** $y''' - 2y' = 3x,$ $y(0) = 1, y'(0) = 0, y''(0) =$ **masala, qanday masala deyiladi** | Koshi masalasi | Chegaraviy masala | Variatsion masala | Gursa masalasi |
| 123 | **Quyidagi tenglama qaysi tipga** | To'la differensial | Bernulli | Hosilaga nisbatan | $x$ ga nisbatan chiziqli |

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| | **tegishli:** $(2xy - x^2)dy + (y^2 - 2xy)dx = 0$ | | | echilmagan | |
| 124 | $y' - 3x^2 y = 0$ **tenglamaning umumiy yechimini toping** | $y = c \cdot e^{x^3}$ | $y = c + e^{x^2/2}$ | $y = c \cdot e^{2x^2}$ | $y = c \cdot x^2$ |
| 125 | $y'' - 6y' = 0$ **tenglamaning umumiy yechimini toping** | $y = c_1 + c_2 e^{6x}$ | $y = c_1 \cos 6x + c_2 \sin 6x$ | $y = ce^{-6x}$ | $y = e^{-6x}(c_1 \cos x + c_2 \sin x)$ |
| 126 | $3y - xy' = 0$ **tenglamaning umumiy yechimini toping** | $y = cx^3$ | $y^3 = cx + x^2$ | $xy + y^3 = c$ | $y = 0$ |
| 127 | **Ushbu** $y = x\sqrt{y'} + \sqrt{\sin y'}$ **tenglama ... tenglamasi deb ataladi.** | Lagranj | Bernulli | Klero | Rikkati |
| 128 | **Qanday almashtirish bajarilsa ushbu** $y' - xy = 4\sqrt[3]{y}$ **tenglama chiziqli tenglamaga keladi?** | $z = \sqrt[3]{y^2}$ | $y = zx$ | $z = \frac{1}{\sqrt{y}}$ | $y = zx^2$ |
| 129 | **Eyler tenglamasi qaysi javobda ko'rsatilgan?** | $(1 - x)^2 y'' - 3y = 0$ | $xy'' - 2y' - 3xy = 0$ | $xy' - x^2 y + 1 = 0$ | $y'' + 2y' + y = 0$ |
| 130 | $y'' + 36y = 0$ **tenglamaning** | $y = c_1 \cos 6x + c_2 \sin 6x$ | $y = ce^{-36x}$ | $y = c_1 e^{4x} + c_2 e^{-4x}$ | $y = ce^{-6x} \sin 6x$ |

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| | **umumiy yechimini toping** | | | | |
| 131 | **Berilgan differensial tenglamaning yeching:** $y'' + 2y' + y = 1$ | $y = C_1 e^{-x} + C_2 x e^{-x} + 1$ | $y = C_1 e^{-x} + C_2 e^{-x} + 1$ | $y = C_1 e^{-x} + C_2 x e^{x} + 1$ | $y_1 = bx + c$ |
| 132 | **Hususiy yechimi** $y_1 = x e^{2x}$ **bo'lgan chiziqli o'zgarmas koeffisientli differensial tenglamani ko'rsating.** | $y'' - 4y' + 4y = 0$ | $y''' - y' = 0$ | $y'' - y = 0$ | $y''' + 3y' = 0$ |
| 133 | **Berilgan tenglamaning tipini aniqlang:** $(x - x^2)y' + (x - 1)y\ln\|x\| = 0$ | o'zgaruvchilari ajraladigan | to'la differensial | $y$ ga nisbatan chiziqli | Bernulli |
| 134 | **Tenglamaning tipini aniqlang** $x^2 y' = 3y^2 + x^2 e^{\frac{2y}{x}}$ | Bir jinsli differensial tenglama | Bernulli | o'zgaruvchilari ajraladigan | to'la differensial |
| 135 | $y'x = \cos x - y$ **tenglamani yechimini aniqlang.** | $y = \frac{\sin x + C}{x}$ | $y = \cos x + Cx^2$ | $y = Cx + \sin x$ | $y = Cx + \cos x$ |
| 136 | $(3x^2 - \sin x)dx - 2ydy = 0$ **tenglamaning umumiy yechimini toping** | $y^2 = x^3 + \cos x + C$ | $y\sin x + y^3 = C$ | $y^2\cos x + x^3 = C$ | $y^2 = x^3 - \cos x + C$ |

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| 137 | **Tenglamaning tipini aniqlang** $y = x\sin^2 y' + y'^2$ | Lagranj | Bernulli | Klero | Eyler |
| 138 | **Ushbu** $y = cx^2$ **chiziqlar sinfining differensial tenglamasini toping** | $xy' = 2y$ | $y' = y^{\frac{2}{x}}$ | $y'x = 3y$ | $y'x^2 = y^2$ |
| 139 | **Ushbu** $y = cx^5$ **chiziqlar sinfining differensial tenglamasini toping** | $xy' - 5y = 0$ | $y' = y^{\frac{2}{x}}$ | $y'x = 3y$ | $y'x^2 = y^2$ |
| 140 | $y' = \frac{y}{x\ln x}$ **tenglamani yechimini aniqlang.** | $y = c\ln x$ | $y = c + \ln x$ | $y = c\ln x + x$ | $y = ce^x$ |
| 141 | $y'' - 2y' = 0$ **tenglamaning umumiy yechimini toping.** | $y = c_1 + c_2 e^{2x}$ | $y = c_1 e^{2x} + c_2 e^{-2x}$ | $y = ce^{-2x}$ | $y = c_1\cos 2x + c_2$ |
| 142 | $y'' + 5y' + 4y = xe^{-x}$ **tenglamaning xususiy yechimi qanday ko'rinishda qidiriladi** | $y = (ax^2 + bx)e^{-x}$ | $y = x(ax^2 + bx + c)e$ | $y = x(ax + b)e^x$ | $y = ax^2e^{-x}$ |
| 143 | **Hususiy yechimi** $y_1 = xe^{-3x}$ **bo'lgan chiziqli o'zgarmas koeffisientli** | $y'' + 6y' + 9y = 0$ | $y'' - 2y' - 3y = 0$ | $y' - y = 0$ | $y''' - 2y'' + y = 0$ |

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| | **differensial tenglamani ko'rsating** | | | | |
| 144 | $2y - y' = e^{-x}$ **tenglamaning yechimini toping:** | $y = Ce^{-2x} + \frac{1}{3}e^{-x}$ | $y = Ce^{-2x} - \frac{1}{3}e^{x}$ | $y = Ce^{-x} + 2$ | $y = Ce^{-2x} + \frac{x}{3}e^{x}$ |
| 145 | **Ushbu** $2xydx + (x^2 + 3y^2)dy = 0$ **tenglamaning umumiy yechimini toping:** | $x^2y + y^3 = C$ | $x^2y^2 - y = C$ | $xy - y^2 = C$ | $xy^2 + y = C$ |
| 146 | $y'' + 2y = 0$ **tenglamaning umumiy yechimini toping:** | $y = C_1\cos\sqrt{2}x + C_2\sin\sqrt{2}x$ | $y = C_1e^{\sqrt{2}x} + C_2e^{-\sqrt{2}x}$ | $y = C_1\cos 2x + C_2\sin 2$ | $y = C_1 + C_2e^{2x}$ |
| 147 | **Chiziqli tenglamani Bernulli usuli bilan yechishda, yechim ... ko'rinishda izlanadi** | $y = u(x)v(x)$ | $y = u(x) + v(x)$ | $y = u(x) + y_1$ | $y = y_1 \cdot u(x)$ |
| 148 | $y' = \ln(x + y - 1)$ **tenglama qanday almashtirish yordamida o'zgaruvchilari ajralgan tenglamaga keladi?** | $z = x + y - 1$ | $y = zx$ | $y = z + x$ | $z = e^x y$ |
| 149 | **Xususiy yechimlari** $sh2x;\ ch2x$ **bo'lgan eng kichik tartibli** | $y'' - 4y = 0$ | $y''' - 2y' = 0$ | $y'' + y = 0$ | $y''' + 3y'' = 0$ |

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| | **chiziqli differesial tenglama tuzing** | | | | |
| 150 | $xy^2 - y'y'' = 0$ **(** $y$ **va uning hosilalariga nisbatan birjinsli) tenglama tartibi … almashtirish orqali bittaga kamaytiriladi** | $y' = zy$ | $y' = z$ | $y' = zx$ | $y' = ze^x$ |
| | $y' + yx - y^2 = 1$ **Rikkati tenglamasi qanday almashtirish yordamida yechiladi?** | $y = z + x$ | $y_1 = zy$ | $y_1 = zx$ | $y = e^{z y_1}$ |
| 151 | **Ushbu** $y' = xy'' - f(x),$ $y(2) = 0,\ y'(1) = 0$ **masala qanday masala deyiladi.** | Chegaraviy masala | Koshi masalasi | Variatsion masala | Gursa masalasi |
| 152 | **Ushbu** $xy'y'' - 2yy''' = 0$ **tenglamaning tartibi … almashtirish yordamida pasaytiriladi.** | $y' = z(x),\ y'' = z'(x),$ $y''' = z''(x)$ | $y' = yz(x)$ | $y' = z(y),\ y'' = z(y)\cdot z'(y)$ | $y' = xz(y)$ |
| 153 | **Ushbu masala qanday masala deyiladi:** $2y'(y'' + 2) = xy''^2,$ $y(1) = 1,\ y'(1) = 2$ | Koshi masalasi | Chegaraviy masala | Variatsion masala | No local masala |

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| 155 | **Berilgan tenglamaning tipini aniqlang:** $(xy+3yx^2)y'+x=0$ | o'zgaruvchilari ajraladigan | to'la differensial | $y'$ ga nisbatan chiziqli | Bernulli |
| 156 | **Tenglamaning tipini aniqlang:** $xy'=\sqrt{y^2+x^2}$ | Bir jinsli differensial tenglama | Bernulli | o'zgaruvchilari ajraladigan | to'la differensial |
| 157 | **Ushbu** $yy''-2y'y^2=1$ **tenglama tartibi ... almash tirish orqali pasaytiriladi** | $y'=z(y),\ y''=z(y)\cdot z'(y),...$ | $y'=z(x),\ y''=z'(x)$ | $y'=yz(x)$ | $y'=xz(y)$ |
| 158 | $(x-1)^2y''-(x-1)y'+x=0$ **tenglama ... tenglamasi deyiladi** | Eyler | Klero | Bernulli | Rikkati |
| 159 | $y'+y=e^x$ **tenglamaning yechimni ko'rsating:** | $y=ce^{-x}+\frac{1}{2}e^x$ | $y=ce^{-2x}-\frac{1}{3}e^{-x}$ | $y=ce^{-x}+2$ | $y=ce^{-2x}+\frac{x}{3}e^{-x}$ |
| 160 | **Ushbu** $(x^2+y)dx-xdy=0$ **tenglamaning integrallovchi ko'paytuvchisini ko'rsating.** | $\mu(x)=\frac{1}{x^2}$ | $\mu(x)=-\frac{1}{x^2}$ | $\mu(y)=\frac{1}{y^2}$ | $\mu(x)=x^2$ |
| 161 | $y-4y''=-3e^{-x}$ **tenglamaning umumiy yechimini toping** | $y=c_1e^{0.5x}+c_2e^{0.5x}-e^{-x}$ | $y=c_1e^{3x}+c_2e^{-3x}+e$ | $y=c_1\cos x+c_2\sin x+e^x$ | $y=c_1+c_2e^{-x}-e^x$ |

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| 162 | **Sistemani yeching:** $\begin{cases} \dot{x}(t) = 2x + y \\ \dot{y}(t) = 3x + 4y \end{cases}$ | $x(t) = c_1 e^{t} + c_2 e^{5t}$<br>$y(t) = -c_1 e^{t} + 3c_2 e^{5t}$ | $x(t) = c_1 e^{2t} + c_2 e^{t}$<br>$y(t) = -c_1 e^{t} + 3c_2 e^{5t}$ | $x(t) = -c_1 e^{t} + c_2 e^{5t}$<br>$y(t) = -c_1 e^{t} + 3c_2 e^{5t}$ | $x(t) = -c_1 e^{t} - c_2 e^{2t}$<br>$y(t) = -c_1 e^{t} + 3c_2 e^{5t}$ |
| 163 | $dy = \ln(2x + y - 2)dx$ **tenglama qanday almashtirish yordamida o'zgaruvchilari ajralgan tenglamaga keladi?** | $z = 2x + y - 2$ | $y = zx^{n}$ | $y = zx$ | $y = 3e^{2x}$ |
| 164 | **Birinchi tartibli chiziqli tenglamani aniqlang:** | $xy' + \sin x \cdot y = \cos x$ | $dy = \sin(ax + by)dx$ | $\sin x \cdot ydx + yxdy = 0$ | $mxdx + nydy = 0$ |
| 165 | **Ushbu** $y' + 2xy = e^{-x^2}\sin x$ **tenglamaning integral-lovchi ko'paytuvchisini ko'rsating** | $\mu(x) = e^{x^2}$ | $\mu(x) = -\frac{1}{x^2}$ | $\mu(y) = \frac{1}{y^2}$ | $\mu(x) = x^2$ |
| 166 | **Bir xususiy yechimi mavjud bo'lgan Rikkati tenglamasi ... tenglamasiga keltiriladi?** | Bernulli | Lagranj | Klero | Eyler |
| 167 | $y''^2 + y' + xy'y'' = 0$**tenglama tartibi ... almashtirish orqali bittaga kamaytiriladi** | $y' = z(x)$ | $y' = zx$ | $y' = z$ | $y' = ze^{x}$ |

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| 168 | $y' = f\left(\frac{x - y + 1}{2x - 2y - 3}\right)$ **tengla-ma qanday almashtirish yordamida o'zgaruvchilari ajralgan tenglamaga keladi?** | $z = x - y$ | $z = yx^2$ | $z = yx$ | $z = ye^{2x}$ |
| 169 | $yy'' + xy'^2 = 0$ **tenglama tartibi ... almashtirish orqali bittaga kamaytiriladi** | $y' = zy$ | $y' = zx$ | $y' = z$ | $y' = ze^x$ |
| 170 | **Ushbu** $2xy^2dx - 3x^2ydy = 0$ **tenglamaning integral-lovchi ko'paytuvchisini ko'rsating** | $\mu = \varphi(y)$ | $\mu = \varphi(x)$ | $\mu = \varphi(xy)$ | $\mu = \varphi(x + y)$ |
| 171 | $y''^2 + yy' + y'y'' = 0$ **tenglama tartibi ... almashtirish orqali bittaga kamaytiriladi** | $y' = zy$ | $y' = ze^x$ | $y' = zx$ | $y' = z$ |
| 172 | **Ushbu** $(x^2 + xy^2)dx - 2x^2ydy = 0$ **tenglamaning integrallov-chi ko'paytuvchisini ko'rsating** | $\mu = \varphi(x)$ | $\mu = \varphi(xy)$ | $\mu = \varphi(x + y)$ | $\mu = \varphi(x - y)$ |

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| 173 | **Ushbu** $(x^2+xy)dx-x^2dy=0$ **tenglamaning integrallov-chi ko'paytuvchisini ko'rsating** | $\mu(x)=\frac{1}{x^3}$ | $\mu(x)=-\frac{1}{x^2}$ | $\mu(y)=\frac{1}{y^2}$ | $\mu(x)=x^2$ |
| 174 | **Ushbu** $(\ln x+xy)dx+x^2dy=0$ **tenglamaning integrallov-chi ko'paytuvchisini ko'rsating** | $\mu(x)=\frac{1}{x}$ | $\mu(x)=-\frac{1}{x^2}$ | $\mu(y)=\frac{1}{y^2}$ | $\mu(x)=x^2$ |
| 175 | **Agar** $y_1(x)$ **va** $y_2(x)$ **biror bir jinsli 2-tartibli chiziqli differensial tenglamaning chiziqli erkli yechimlari bo'lsa, u holda … funksiya shu tenglamaning umumiy yechimi bo'ladi** | $C_1y_1(x)+C_2y_2(x)$ | $C\cdot y_1(x)\cdot y_2(x)$ | $y_1(x)+y_2(x)$ | $\sqrt{y_1(x)y_2(x)}$ |
| 176 | $y'=\frac{3x-y}{2x+y}$ **tenglama qanday almashtirish yordamida o'zgaruvchilari ajralgan tenglamaga keladi?** | $z=\frac{y}{x}$ | $y=zx^n$ | $y'=zy$ | $y=\frac{z}{x}$ |

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| 177 | $y' - 2xy = 2x^2 - 1$ **tenglamaning umumiy yechimini toping** | $y = c \cdot e^{2x} - x$ | $y = c + e^{2x}$ | $y = c \cdot e^{2x^2} + x$ | $y = c \cdot x^2$ |
| 178 | $y'' - 6y' = -5e^x$ **tenglamaning umumiy yechimini toping** | $y = c_1 + c_2 e^{6x} + e^x$ | $y = c_1 \cos 6x + c_2 \sin 6x$ | $y = ce^{6x} + e^x$ | $y = e^{6x}(c_1 \cos x + c_2 \sin x)$ |
| 179 | $3y - xy' = 2x$ **tenglamaning umumiy yechimini toping** | $y = cx^3 + x$ | $y^3 = cx + x^2$ | $xy + y^3 = c$ | $y = 0$ |
| 180 | **Ushbu** $y = xy'^2 + \sqrt{\sin y'}$ **tenglama** $\cdots$ **tenglamasi bo'ladi.** | Lagranj | Bernulli | Klero | Rikkati |
| 181 | **Qanday almashtirish bajarilsa ushbu** $y' - x^2 y = x\sqrt[3]{y^2}$ **tenglama chiziqli tenglamaga keladi?** | $z = \sqrt[3]{y}$ | $y = zx$ | $z = \frac{1}{\sqrt{y}}$ | $y = zx^2$ |
| 182 | **Eyler tenglamasi qaysi javobda ko'rsatilgan?** | $(x - 0.5)y'' - \frac{3y}{2x-1} = 0$ | $xy'' - 2y' - 3xy = 0$ | $xy' - x^2 y + 1 = 0$ | $y'' + 2y' + y = 0$ |
| 183 | $y''' - 2y'' = 0$ **tenglamaning umumiy yechimini toping** | $y = c_1 + c_2 x + c_3 e^{2x}$ | $y = ce^{2x}$ | $y = c_1 e^{2x} + c_2 e^{-2x}$ | $y = ce^{-6x} \sin 6x$ |
| 18 | **Berilgan** | $y = c_1 e^{2x} + c_2 x e^{2x} + e^x$ | $y = c_1 e^{2x} + c_2 e^{2x} + 1$ | $y = c_1 e^{-x} + c_2 x e^x + 1$ | $y = bx + c$ |

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| 4 | **differensial tenglamaning yeching:** $y'' - 4y' + 4y = e^x$ | | | | |
| 185 | **Hususiy yechimi** $y_1 = x e^{2x}$ **bo'lgan chiziqli o'zgarmas koeffisientli differensial tenglamani ko'rsating.** | $y'' + 4y' + 4y = 0$ | $y'' - y' = 0$ | $y'' - y = 0$ | $y''' + 3y' = 0$ |
| 186 | **Agar** $y_1(x)$ **va** $y_2(x)$ **biror bir jinsli bo'lmagan chiziqli differensial tenglama yechimi bo'lsa, u holda … funksiya mos birjinsli tenglama xususiy yechimi bo'ladi** | $y_1(x) - y_2(x)$ | $y_1(x) \cdot y_2(x)$ | $y_1(x) + y_2(x)$ | $\sqrt{y_1(x) y_2(x)}$ |
| 187 | $y' = f\left(\frac{2x + 2y + 1}{x + y - 3}\right)$ **tengla ma qanday almashtirish yordamida o'zgaruvchilari ajralgan tenglamaga keladi?** | $z = x + y$ | $z = yx^2$ | $z = y - x$ | $z = ye^{ax}$ |

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| 188 | $y''' - 2y'' + y' = 0$ **tenglama ning umumiy yechimini toping** | $y = C_1 + (C_2 + C_3 x)e^x$ | $y = Ce^{2x} + e^x$ | $y = C_1 e^{2x} + C_2 e^{-2x}$ | $y = Ce^{-x}\sin 2x$ |
| 189 | **Berilgan differensial tenglamaning yeching:** $y'' + 4y' + 4y = 5e^x$ | $y = C_1 e^{-2x} + C_2 x e^{-2x} + e^x$ | $y = C_1 e^{-2x} + C_2 e^{-2x} +$ | $y = C_1 e^{-x} + C_2 x e^x + 1$ | $y = bx + c$ |
| 190 | $y' = \frac{x^2 + 2y^2}{2xy}$ **tenglama qanday almashtirish yordamida o'zgaruvchilari ajralgan tenglamaga keladi?** | $z = \frac{y}{x}$ | $y = zx^n$ | $y' = zy$ | $y = \frac{z}{x}$ |
| 191 | $y' - 3xy = 1 - 3x^2$ **tenglamaning umumiy yechimini toping** | $y = C \cdot e^{3x} + x$ | $y = C + e^{x^3/2}$ | $y = C \cdot e^{2x^2} + x$ | $y = C \cdot x^2$ |
| 192 | $y' = \sqrt[3]{2x - 3y + 1}$ **tenglama qanday almashtirish yordamida o'zgaruvchilari ajralgan tenglamaga keladi?** | $z = 2x - 3y + 1$ | $y = zx$ | $y = z + x$ | $z = e^x y$ |
| 19 | **Xususiy yechimlari** | $y'' - 9y = 0$ | $y''' - 3y' = 0$ | $y'' + y = 0$ | $y''' + 3y'' = 0$ |

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| 3 | $sh(3x)$, $e^{3x}$ **bo'lgan eng kichik tartibli chiziqli differesial tenglama tuzing** | | | | |
| 194 | $3xy^2 + 2y'y'' = 0$ **( $y$ va uning hosilalariga nisbatan birjinsli) tenglama tartibi … almashtirish orqali bittaga kamaytiriladi** | $y = e^{\int z(x)dx}$ | $y' = z$ | $y' = zx$ | $y' = ze^x$ |
| 195 | $y' + 2yx - y^2 = 1 + x^2$ **Rikkati tenglamasi qanday almashtirish yordamida yechiladi?** | $y = z + x$ | $y_1 = zy$ | $y_1 = zx$ | $y = e^{z}y_1$ |
| 196 | **Tenglamaning tipini aniqlang** $y = x\sin 2y' + y'^2$ | Lagranj | Bernulli | Klero | Eyler |
| 197 | **Ushbu** $y = cx^3$ **chiziqlar sinfining differensial tenglamasini toping** | $xy' = 3y$ | $y' = y^{\frac{2}{x}}$ | $y'x = 3y$ | $y'x^2 = y^2$ |
| 198 | $y' = \frac{3y}{x}$ **tenglamani yechimini aniqlang** | $y = cx^3$ | $y = c + x$ | $y = c_1x + c_2$ | $y = ce^x$ |
| 19 | $y'' + 64y = 0$ | $y = c_1\cos 8x + c_2\sin 8x$ | $y = c_1e^{8x} + c_2e^{-8x}$ | $y = ce^{-64x}$ | $y = c_1\cos 2x + c_2x\cos 2x$ |

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| 9 | **tenglamaning umumiy yechimini toping** | | | | |
| 200 | **Hususiy yechimni aniqmas koeffisientlar usuli bilan toping** $y'' + 3y' + 2y = 4x^2 e^{2x}$ | $y = (ax^2 + bx + c)e^{2x}$ | $y = x(ax^2 + bx + c)e^{2x}$ | $y = x(ax + b)e^{2x}$ | $y = ax^2 e^{2x}$ |